6. (Amended) The apparatus of claim 1, wherein said adjustable pressure comprises a range of between about 1 atmosphere and about 45 atmosphere.

13. (Amended) The apparatus of claim 12, wherein said at least one reactant system comprises the atmosphere in said sealed pressurized headspace.

14. (Amended) An apparatus for the rapid screening of potential reactants, catalysts and reaction conditions, the apparatus comprising:

a reaction substrate comprising a plurality of substrate reservoirs;

a thermal unit in communication with said substrate reservoir to adjustably heat and cool said reaction substrate;

a head plate positioned to provide a sealed pressurized headspace adjacent to said plurality of substrate reservoirs, wherein said sealed pressurized headspace comprises a high pressure seal between said head plate and said reaction substrate and wherein said sealed pressurized headspace comprises an adjustable pressure in a range of between about 1 atmosphere and about 50 atmosphere;

a plurality of temperature detectors, wherein at least one of said plurality of temperature detectors is positioned within each of said reaction substrate and said head plate;

a controller in communication with said plurality of temperature detectors, wherein said controller adjusts a temperature of said thermal unit to maintain said reaction substrate at a first temperature, and wherein said controller maintains said head plate at a second temperature; and

a plurality of reactant systems wherein each one of said plurality of reactant systems is positioned within a corresponding one of said plurality of substrate reservoirs, and wherein each of the plurality of reactant systems is at least partly embodied in a liquid film having a thickness L.

15. (Amended) The apparatus of claim 14, further comprising a gas source in communication with said sealed pressurized headspace, wherein said gas source includes at least one gas.

17. (Amended) The apparatus of claim 14, wherein said sealed pressurized headspace comprises a pressure ranging from about 1 atmosphere to about 45 atmosphere.

18. (Amended) The apparatus of claim 17, wherein said sealed pressurized headspace comprises a pressure ranging from about 1 atmosphere to about 20 atmosphere.

21. (Amended) A method for rapid screening of potential reactants, catalysis and reaction conditions, the method comprising:

adding a plurality of reactant systems at least partially embodied in liquid to a reaction substrate comprising a plurality of substrate reservoirs, wherein the reaction substrate has an adjustable first temperature;

maintaining an adjustable pressure in a sealed headspace in communication with the reactant system;

adding a gas to the sealed headspace wherein the gas equilibrates with each of the plurality of liquid reactant systems; and

maintaining said headspace at a second temperature,

wherein said plurality of reactant systems at least partially embodied in liquid each comprises a film having a thickness L.

31. (Amended) The method of claim 21, wherein said thickness L is sufficient to allow the reaction to be independent of the mass transport rate of a gaseous reactant into the liquid reactant system.

32. (Amended) The method of claim 21, wherein said thickness L is sufficient to allow the reaction to be independent of effects of evaporation of the liquid reactant system.

33. (Amended) A method for rapid screening of potential reactants, catalysis and reaction conditions, the method comprising:

adding a plurality of reactant systems to a reaction substrate, wherein the reaction substrate has an adjustable first temperature, and each of the plurality of reactant systems is at least partly embodied in a liquid film having a thickness L, wherein said thickness L is sufficient to allow the reaction to be independent of evaporation of the liquid film and the mass transport rate of a gas into the liquid;

maintaining an adjustable pressure in a sealed headspace in communication with the reactant system;

adding said gas to the sealed headspace, wherein said gas equilibrates with each of the plurality of liquid reactant systems; and

maintaining the sealed headspace at an adjustable second temperature wherein the second temperature of the headspace is greater than the first temperature of the substrate reservoir.

REMARKS

Applicants thank the Examiner for the attention accorded the present Application in the October 3, 2002 Office Action, in which claims 1-38 were pending. In that Action, claims 33-38 were allowed; claims 30-32 were objected to as being based upon a rejected base claims but were otherwise allowable if rewritten; claims 1-20 were rejected under 35 U.S.C. § 102(b) as being anticipated by DeWitt; and claims 21-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeWitt.

By the foregoing amendments, claims 1, 4, 6, 13, 14, 15, 17, 18, 21, 31, 32 and 33 have been amended to more clearly specify the present invention. Additionally, claims 5, 16 and 30 have been canceled. No new matter has been added, and the amendments are fully supported throughout the specification, as more fully described below.

Claims 1-4, 6-15, 17-29 and 31-38 are now currently pending in this Application. Based on the above amendments, Applicants respectfully submit that the objection and rejections to claims 1-38 have been overcome. Reconsideration of this Application is respectfully requested in view of the foregoing amendments and the following remarks.